REMARKS

Amendment to the claims, particularly independent claim 1, has been made and new claim 19 added to more clearly define the present invention and overcome the Examiner's rejection of claims 1-13 and 15-16 under 35 USC 112, second paragraph.

Support for the fibers having an external diameter <200μm can be found in former claim 8 of the application as filed.

Support for a pore size of between 0.5 nm and 20 nm can be found on page 13, first paragraph and page 16, last paragraph to page 17, first paragraph, as well as former claim 11.

Support for an acrylate and/or methacrylate as a polymeric binder which is polymerized after the shaping by using a radical starter can be found in former claim 7.

Support for the adding to the ceramic mass a carbon based organic or inorganic component as a sacrificial material in amounts between 5 and 20 wt% step can be found on page 17, first paragraph.

New independent claim 19 reads as amended claim 1 with the difference that the external diameter of the porous hollow fibers is below 10 μm and the maximum pore size is below 5nm.

Support for the external diameter of below 10 μm can be found in former claim 8 of the application as filed.

Support for this pore size range can be found on page 16, last paragraph to page 17, first paragraph and page 19, first paragraph of the application as filed together with former claim 11.

Traverse of the Examiner's rejection will be based on the amended claims.

The Examiner has rejected claims 1-13, 15, and 16 under 35 USC 103(a) on various combinations of FR 2776287 to Soria, et al., WO 01/30702 to Kolb, et al., U.S. 5,707,584 to Terpstra, et al., U.S. 5,082,607 to Tange, et al., U.S. 4,571,414 to Renlond, et al.

Traverse of all these rejections, the Applicant submits that the Supreme Court in KSR International Company v. Teleflex, Inc. has issued its opinion regarding the issue of obviousness under 35 USC 103(a) when a claim recites a combination of elements of the prior art. KSR International Company v. Teleflex, Inc., 35 USPQ 2d 1396 (U.S. April 30, 2007).

The KSR decision, however, did not overrule in *In re* Roika, 180 USPQ 580 (CCPA 1974). The KSR decision did not address the issue of all elements test because all of the elements were present in the asserted combination. Instead, it was the propriety of the asserted combination that was at issue. Thus, *In re* Roika is still in force and requires that each element of a claim must be present (i.e., taught or suggested) by an asserted combination.

Bearing in mind this criteria, it is clear that all of the references fail to disclose:

- using an oxycarbocylic acid as a deflocculating agent;
- showing hollow fibers having an external diameter <200μm (claim 1) or < 100 μm (new claim 19);
- aA pore size of the hollow fibers between 0.5 and 20 (claim 1), or between 0.5 and 5 nm (claim 19), respectively;
- the metal oxide powder having a particle size of between 1 and 50 nm;
- the ceramic mass having a solids content of at least 30 vol%; and
- using an acrylate and/or methacrylate as a polymetric binder;
- polymerizing the acrylate and/or methacrylate binder by using a radical starter.

Starting from the manufacturing method disclosed by Soria, the advantage of the method according to amended claims 1 and 19 is that porous hollow fibers can be manufactured which can be used in nanofiltration as well as low range ultrafiltration applications for particles with a size of up to 20 (claim 1) or 5 nm (claim 13), respectively.

The objective problem to be solved can, therefore, be seen in providing a method for manufacturing porous hollow fibers suitable for use in nano- and low-range ultrafiltration.

A person skilled in the art would, even in view of the cited documents not find to the subject matter according to amended claims 1 and 13, respectively.

First of all, a person skilled in the art does not find any indication in the documents to use an acrylate and/or methacrylate as a polymeric binder together with a carbon-based sacrificial material for forming the pores.

Tange does indeed teach forming a ceramic mass by dispersing a ceramic powder (e.g. zirconium) in a polymerizable unsaturated compound which can cause a radical polymerization. The pores in the later sintered product, however, are formed by adding water which is uniformly dispersed in the oil layer formed by the polymerizable compound as droplets, the water droplets being evaporated off during the polymerization process.

Starting from Soria, a person skilled in the art would, if at all, consider using the acrylate/metacrylate as a package in combination with the water to form the pores, as it's the heat generated during the exothermic polymerization reaction of the polymeric binder that is used to evaporate the water droplets and thereby form the pores. This, however, would actually lead a person skilled in the art away from the teaching of amended claims 1 and 13. There is no indication in Soria or Tange, whatsoever, of selectively choosing the acrylate/methacrylate as a polymeric binder as shown by Kolb.

Furthermore, none of the references cited by the Examiner also fail to give a person skilled in the art any hint as to using a nanoscale powder with a particle size of between 1 and 50 nm.

This particle size allows for formation of pores having a pore shape which very much corresponds to the outer shape of the used carbon-based sacrificial material. Pore size and shape

of the hollow fibers are thereby rather defined by the size and shape of the used sacrificial material with a significantly reduced influence of the powder particles themselves.

Overall, this allows for manufacture of porous hollow fibers which show pores having a much more uniform desired size. Thus, the porous hollow fibers offer higher margin of safety as to undesired solutes crossing the walls of the fibers. This can be of major importance, e.g. drinking water purification.

Lastly, there is no indication in any of the cited references as to a manufacturing method of porous hollow fibers with an external diameter of les than 100 μm (claim 1) or less than 200 μm (claim 19).

Because all of the elements of the present invention as presently claimed are not taught or suggested by the cited references, a prima facie case of obviousness cannot be established for the amended claims under 35 USC 103(a).

In view of the arguments hereinabove set forth and amendment to the claims, it is submitted that each of the claims now in the application define patentable subject matter not anticipated by the art of record and not obvious to one skilled in this field who is aware of the references of record. Reconsideration and allowance are respectfully requested.

Respectfully submitted,

Walter A. Hackler
Attorney of Record
Registration No. 27,792
2372 S.E. Bristol, Suite B
Newport Beach, California 92660
(949) 851-5010